BULLETIN
MARCH 2025
1400-A

APCO FFF FULL FLOW FOOT VALVES

Design & Construction

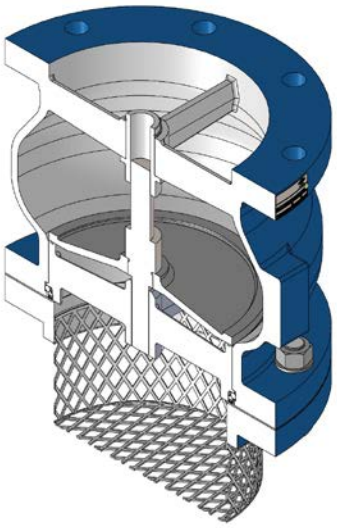
APCO FFF Full Flow Foot Valve is a type of check valve designed for submerged water or clean fluids service and typically installed at the bottom of a suction line and inside a wet well. It is an inexpensive way to maintain prime on a single centrifugal pump.

They are available with Ductile Iron, Carbon Steel or 316 Stainless Steel bodies with ASME 125/150 end connections in sizes 3-24” (80-600mm).

Since the valve is continuously submerged, it is not readily accessible for inspection or repair. For this reason, the valve is constructed with high quality long-wearing materials. It has a heavy cast body, rugged stainless steel internals and drop tight resilient seating to ensure no loss of suction. The strainer cap is constructed from heavy stainless steel and securely bolted to the valve body.

Full Flow Area

The APCO FFF Full Flow Foot Valve provides full flow area to ensure minimum head loss. The flow area through the body is 10% greater than the equivalent pipe size.



Plug Guided at Both Ends

The plug is center guided at both ends by the shaft. The stainless steel bushing and shaft protect against electrolytic action and provide long valve service life.

Ease of Maintenance

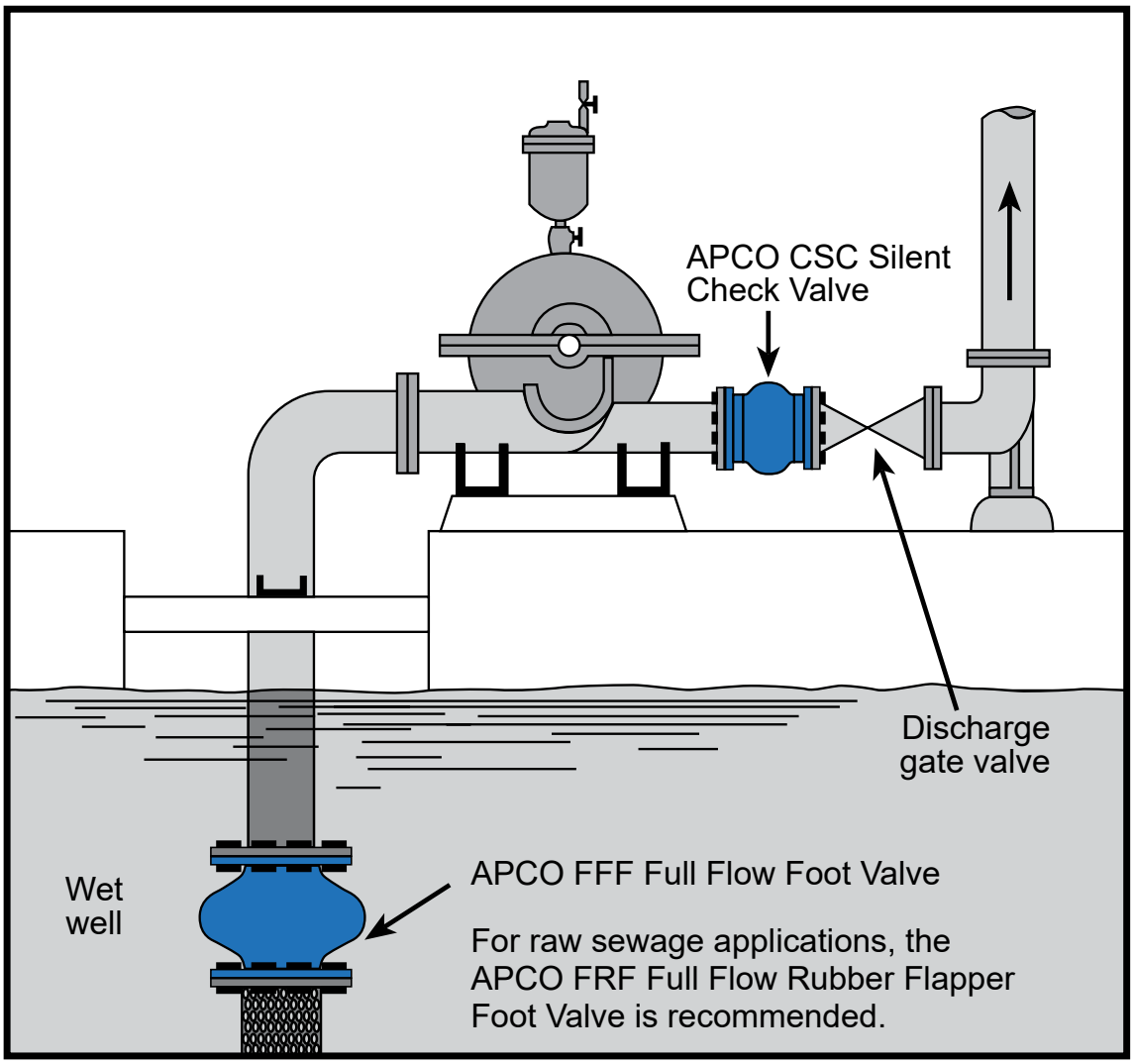
If maintenance is ever required, the seat and plug are hand replaceable in the field. The bushing is held in place by the retaining ring so that it can be easily removed if required.

How it Works

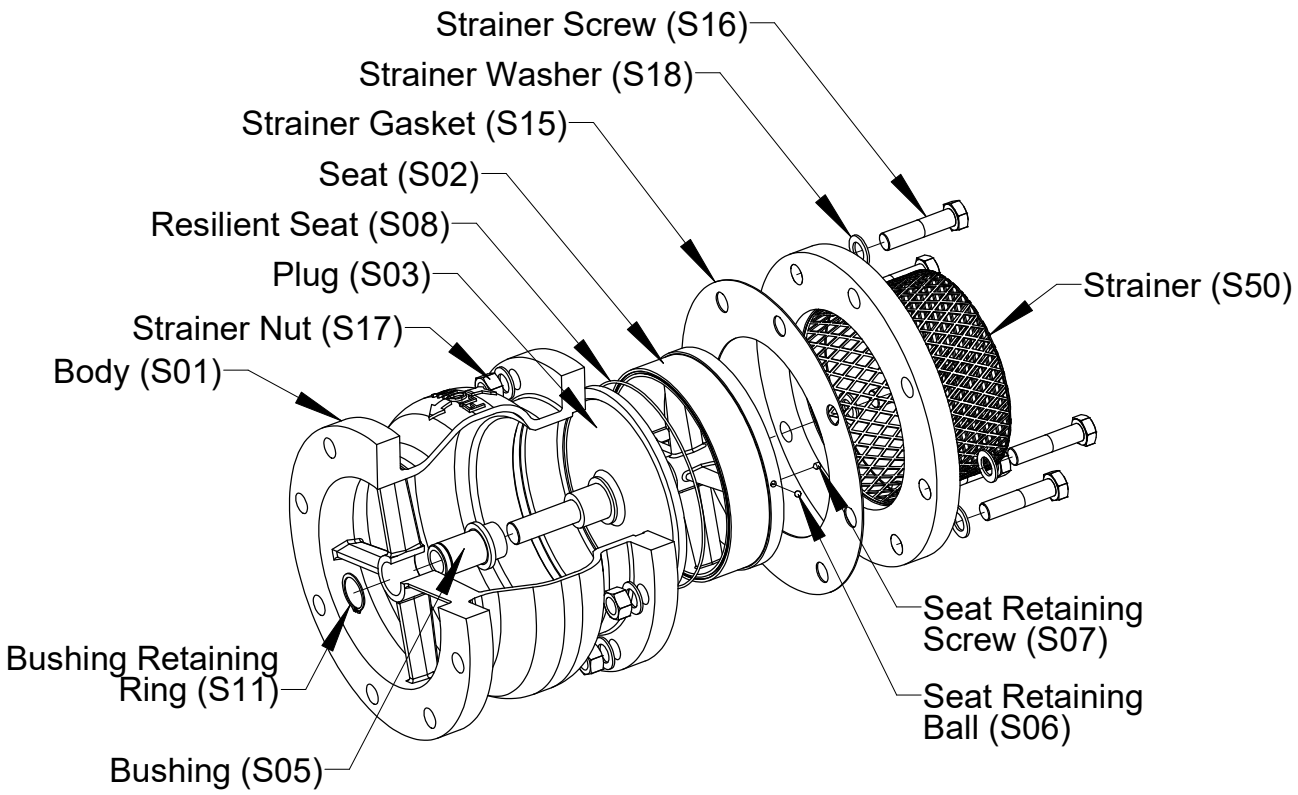
The foot valve is installed in the vertical position with the direction of flow upward. In this position, the valve is normally closed. Prior to initial start up of the centrifugal pump, it is recommended to manually fill the suction line with water. This eliminates the risk of damage to the centrifugal pump from running dry.

Once the suction line is filled, the foot valve takes over and opens while the centrifugal pump is running and closes when the pump stops running to maintain a primed flooded suction pump.

Typical Foot Valve Installation



Materials of Construction



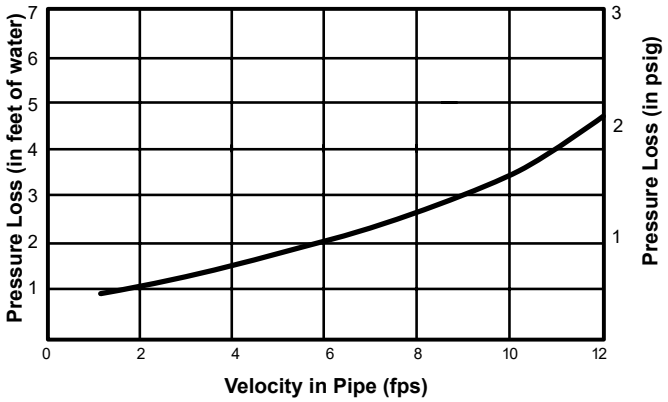
Item	Description	Material
S01	Body	Ductile Iron, ASTM A536
		Carbon Steel, ASTM A216
		316 Stainless Steel, ASTM A743, A351
S02	Seat	316 Stainless Steel, ASTM A743, A351
S03	Plug	316 Stainless Steel, ASTM A743, A351
S05	Bushing	316 Stainless Steel, ASTM, A213
S06	Seat Retaining Ball	440 Stainless Steel
S07	Seat Retaining Screw	18-8 Stainless Steel
		316 Stainless Steel
S08	Resilient Seat	Acrylonitrile-Butadiene
		Terpolymer of Ethylene Propylene & A Diene
		Fluoro Rubber
S11	Bushing Retaining Ring	316 Stainless Steel ASTM A240
		15-7PH Stainless Steel, ASTM A693
S15	Strainer Gasket	Cellulose Cork Fiber Non-Asbestos Gasket Material
S16	Strainer Screw	Carbon Steel, Zinc-Plated
		316 Stainless Steel
S17	Strainer Nut	Carbon Steel, Zinc-Plated
		316 Stainless Steel
S18	Strainer Washer	Carbon Steel, Zinc-Plated
		316 Stainless Steel
S50	Strainer	316 Stainless Steel, ASTM A240

Valve Selection

Pressure Ratings (at ambient temperature)

Body Material	Pressure
Ductile Iron	250 psi (1720 kPa)
Carbon Steel	285 psi (1960 kPa)
316 Stainless Steel	275 psi (1900 kPa)

Typical Friction Loss Chart



Valve Weights

Valve Size	Weight
3" / 80mm	38 / 17
4" / 100mm	51 / 23
6" / 150mm	95 / 43
8" / 200mm	146 / 66
10" / 250mm	218 / 99
12" / 300mm	335 / 152
14" / 350mm	450 / 204
16" / 400mm	570 / 259
18" / 450mm	700 / 318
20" / 500mm	845 / 383
24" / 600mm	1595 / 723

Pounds
Kilograms

Ordering

To order, simply complete the valve order code from information shown. An ordering example is shown for your reference.

Valve Style
Give valve style code as follows:

FFF = Full Flow Foot Valves with Strainer

Valve Size
Give valve size code as follows:

3	=	3"	80mm	14	=	14"	350mm
4	=	4"	100mm	16	=	16"	400mm
6	=	6"	150mm	18	=	18"	450mm
8	=	8"	200mm	20	=	20"	500mm
10	=	10"	250mm	24	=	24"	600mm
12	=	12"	300mm				

Body Style
Give body style code as follows:

1400A= Series 1400 Full Flow Foot Valves

End Connection
Give end connection code as follows:

F1 = Flanged, ASME 125/150

Body Material
Give body material code as follows:

DI = Ductile Iron
CS = Carbon Steel
S2 = 316 Stainless Steel

Trim Combination
Plug & Seat Material
Give plug & seat material code as follows:

S2 = 316 Stainless Steel

Seat Seal Material
Give plug & seat material code as follows:

NBR = Acrylonitrile-Butadiene -70 to 250° F (-57 to 121° C)
EPDM = Terpolymer of Ethylene Propylene & A Diene -20 to 300° F (-29 to 150° C)
FKM = Fluoro Rubber-20 to 450° F (-29 to 232° C)

Strainer Material
Give strainer material as follows:

S2 = 316 Stainless Steel

Options
Give option code as follows:

DTR = DeZURIK Standard Certified Hydrostatic Shell & Seat Test Report
--- = Coatings (contact DeZURIK)

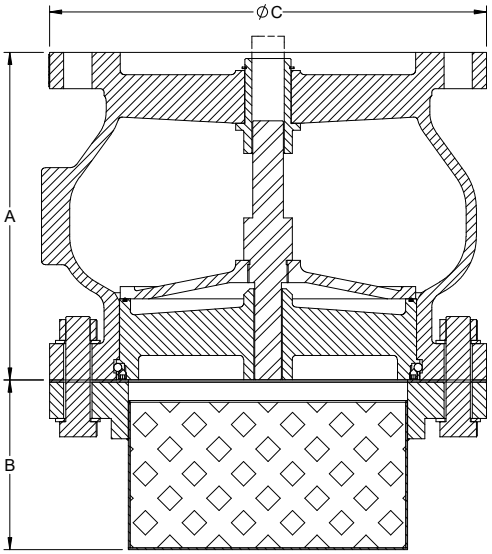
Ordering Example:

FFF,12,1400A,F1,DI,S2-NBR-S2*

Dimensions

Valve Size	A	B	C
3" 80mm	6.00 152	4.88 124	7.5 191
4" 100mm	7.25 184	5.06 129	9.00 229
6" 150mm	9.00 229	5.13 130	11.00 279
8" 200mm	10.13 257	5.25 133	13.50 343
10" 250mm	12.00 305	5.31 135	16.00 406
12" 300mm	14.38 365	5.38 137	19.00 483
14" 350mm	15.75 400	5.50 140	21.00 533
16" 400mm	17.63 448	5.56 141	23.50 597
18" 450mm	18.75 476	5.69 144	25.00 635
20" 500mm	20.63 524	5.75 146	27.50 699
24" 600mm	24.00 610	7.06 179	32.00 813

Inch
Millimeter



Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:
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